2.3 Limits to infinity (end behavior) 2014-09-12 day 13

* The end behavior of a polynomial is determined by the end behavior of its high degree term.

[the high degree term dominates the end behavior]

* useful technique – factoring out powers of x [leaving negative powers of x]

* the "useful technique" (above) is also useful when radicals are involved, but requires more thought

* of course, for radicals, multiplying by a conjugate should also be considered.

2.3 Limits to infinity (end behavior)

2014-09-12 day 13

$$\lim_{x\to-\infty} \frac{4x^2-x}{2x^3-5} = \lim_{x\to-\infty} \frac{x^2\left(4-\frac{1}{x}\right)}{x^2(2x-\frac{5}{x^2})}$$

strategy: form $\frac{\infty}{\infty}$

"cancel out infinities"

$$\lim_{x\to-\infty} \frac{4-\frac{1}{x}}{2x-\frac{5}{x^2}} = 0$$

$$\lim_{x\to-\infty} x = -\infty$$

cp. to $\lim_{x\to-\infty} 2x = -\infty$

$\lim_{x\to-\infty} cx = -\infty$ $c>0$ thank you :)

2.3 Limits to infinity (end behavior)

2014-09-12 day 13

$$\frac{4x^2-x}{2x^3-5} = \frac{x^2\left(4-\frac{1}{x}\right)}{x^2\left(2x-\frac{5}{x^2}\right)}$$

$$\frac{4x^2}{x^2} = \frac{x^2}{x^2}\square$$

$$4 = \square$$

$$\frac{x}{x^2} = \frac{x^2}{x^2}\square$$

$$\frac{1}{x} = \square$$

2.3 Limits to infinity (end behavior)

2014-09-12 day 13

$$\lim_{x\to-\infty}\frac{4x^2-x}{2x^3-5}=\lim_{x\to-\infty}\frac{x(4x-1)}{x(2x^2-\frac{5}{x})}$$

$$=\lim_{x\to-\infty}\frac{4x-1}{2x^2-\frac{5}{x}}$$

$$\lim_{x\to-\infty}\frac{4x^2-x}{2x^3-5}=\lim_{x\to-\infty}\frac{x^3(\frac{4}{x}-\frac{1}{x^2})}{x^3(2-\frac{5}{x^3})}$$

$$=\lim_{x\to-\infty}\frac{\frac{4}{x}-\frac{1}{x^2}}{2-\frac{5}{x^3}}=\frac{0}{2-0}=0$$

2.3 Limits to infinity (end behavior)

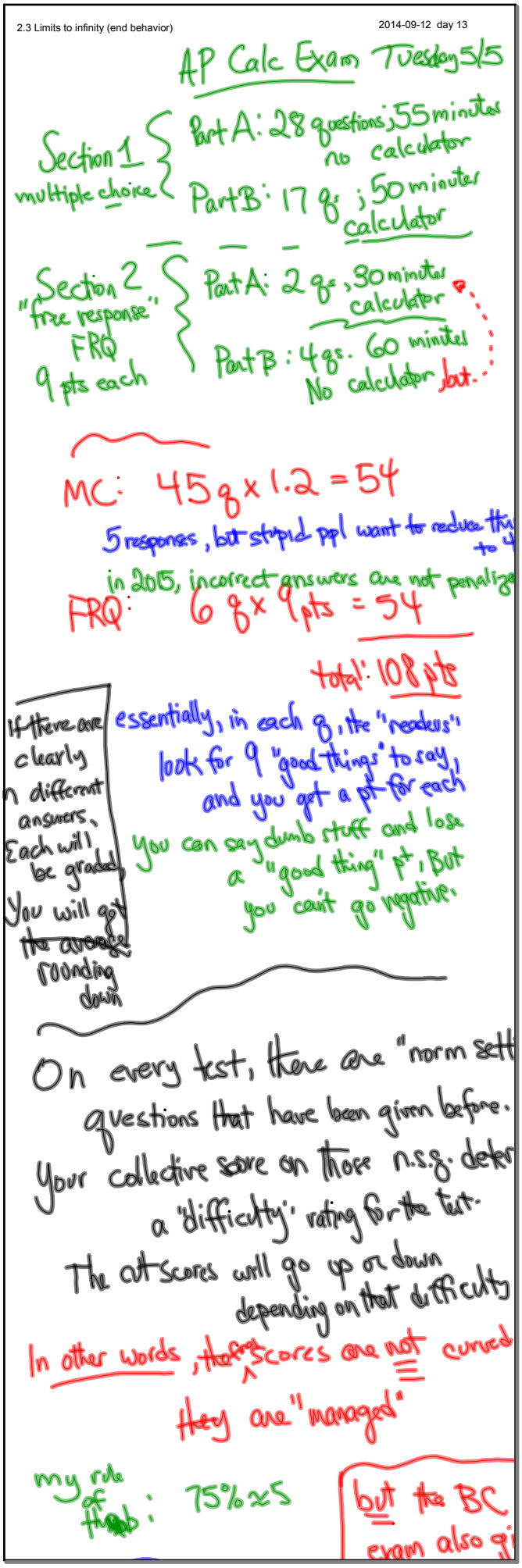
2014-09-12 day 13

$$\lim_{x\to-\infty} \frac{4x^2-x}{2x^3-5} = \lim_{x\to-\infty} \frac{x^4\left(\frac{4}{x^2}-\frac{1}{x^3}\right)}{x^4\left(\frac{2}{x}-\frac{5}{x^4}\right)}$$

$$= \lim_{x\to-\infty} \frac{\frac{4}{x^2}-\frac{1}{x^3}}{\frac{2}{x}-\frac{5}{x^4}} = \frac{0-0}{0-0}$$

$$= \frac{0}{0}$$

indeterminate



2.3 Limits to infinity (end behavior)

2014-09-12 day 13

AP Calc Exam Tuesday 5/5

Section 1 multiple choice
- Part A: 28 questions; 55 minutes; no calculator
- Part B: 17 qs; 50 minutes; calculator

Section 2 "free response" FRQ 9 pts each
- Part A: 2 qs, 30 minutes, calculator
- Part B: 4 qs. 60 minutes. No calculator but.

MC: 45 q x 1.2 = 54

5 responses, but stupid ppl want to reduce thi to 4

in 2015, incorrect answers are not penalize

FRQ: 6 q x 9 pts = 54

total: 108 pts

If there are clearly n different answers, each will be graded. You will get the average rounding down

essentially, in each q, the "readers" look for 9 "good things" to say, and you get a pt for each. You can say dumb stuff and lose a "good thing" pt, but you can't go negative.

On every test, there are "norm setti questions that have been given before. Your collective score on those n.s.q. deter a "difficulty" rating for the test. The cut scores will go up or down depending on that difficulty

In other words, the scores are not curved. They are "managed"

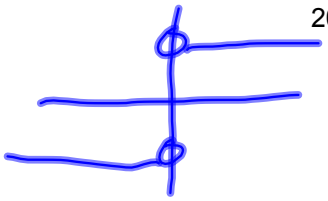
my rule of thumb: 75% ≈ 5

but the BC exam also gi

2.3 Limits to infinity (end behavior)

2014-09-12 day 13

23/2 $f(x) = \frac{x}{|x|}$



$\lim_{x \to +\infty} \frac{x}{|x|} =$

$\lim_{x \to \infty} \frac{x}{x} = 1$

$\lim_{x \to -\infty} \frac{x}{|x|}$

$\lim_{x \to -\infty} \frac{x}{(-x)}$

$= \lim_{x \to -\infty} -1 = -1$

think abs